GOFC-GOLD

Global Observation of Forest and Land Cover Dynamics

Overview of GOFC-GOLD Regional Networks

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GOFC-GOLD Regional Networks Coordinator

with contributions from members of GOFC-GOLD Regional Networks and ExCom.

GTOS

What is GOFC-GOLD

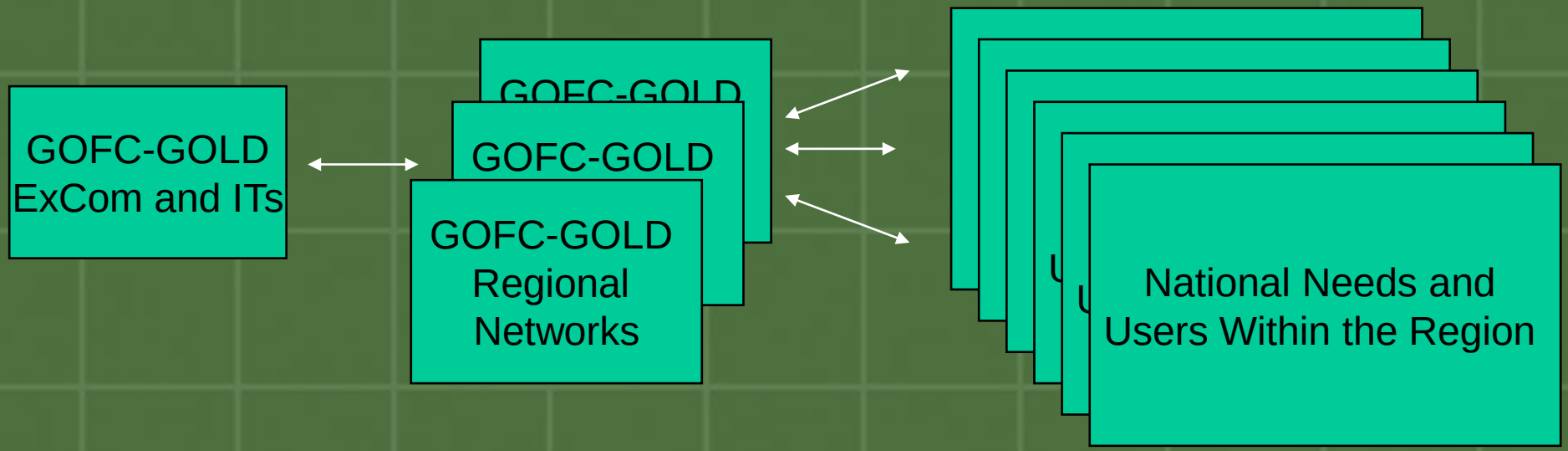
- A coordinated international effort to ensure a systematic and continuous program of space-based and on-the-ground observations of forest and land cover
- A network of participants implementing coordinated research, demonstration and operational projects
- A vision to share data, information and knowledge to inform decision making and address user needs

Organizational Structure

- Executive committee
  - Tony Janetos, Chair
- Two implementation teams
  - Land Cover Characteristics and Change (M. Herold and C. Woodcock)
  - Fire Monitoring and Mapping (J. Goldhammer and C. Justice)
- Working groups
  - Biomass Monitoring
  - Reducing Emissions from Deforestation and Forest Degradation (REDD)
  - Other
- Regional networks
  - Coordinators: Olga Krankina and Anja Hoffman (fire)

Regional Networks

a critical component of GOFC-GOLD connecting ExCom, Implementation Teams, and Working Groups with data users in the regions



GOFC-GOLD

GOFC-GOLD Regional Networks are…

- **Self-organizing, self-directed and self-supported networks of**
  - Practitioners, Scientists and Organizations (Government and NGOs)
    - Within the region and with interest in the region
  - Countries
- **Varied structures, geographic and thematic scope**
- **GOFC-GOLD provides**
  - **Initial support through START (NASA)**
    - **ESA, FAO, CFS**
  - **Coordinators**
    - **Olga Krankina / Land Cover**
    - **Anja Hoffmann / Fire**

Regional Networks

at Inter-network workshop in Wageningen, April 18, 2013

1. NERIN – Northern Eurasia – **Olga Krankina**
2. RedLatiF – Latin America - Alberto Setzer / **Gerardo López Saldaña**
3. SAFNET – Southern Africa – **Philip Frost /**Navashni Govender
4. Miombo - Southern Africa – **Natasha Ribeiro**
5. WARN – West Africa – **Vincent von Vordzogbe**
6. OSFAC - Central Africa – Landing Mane
7. SEARRIN - South East Asia – **Thatheva Saphangthong**
8. CARIN – Central Asia - Nadija Muratova / **Alim Pulatov**
9. **SCERIN – South-Central Europe - Jana Albrechtova**
10. ***BARIN – Baltic-Arctic – Gregg Taff***
11. ***SARIN – South Asia – Krishna Vadrevu***

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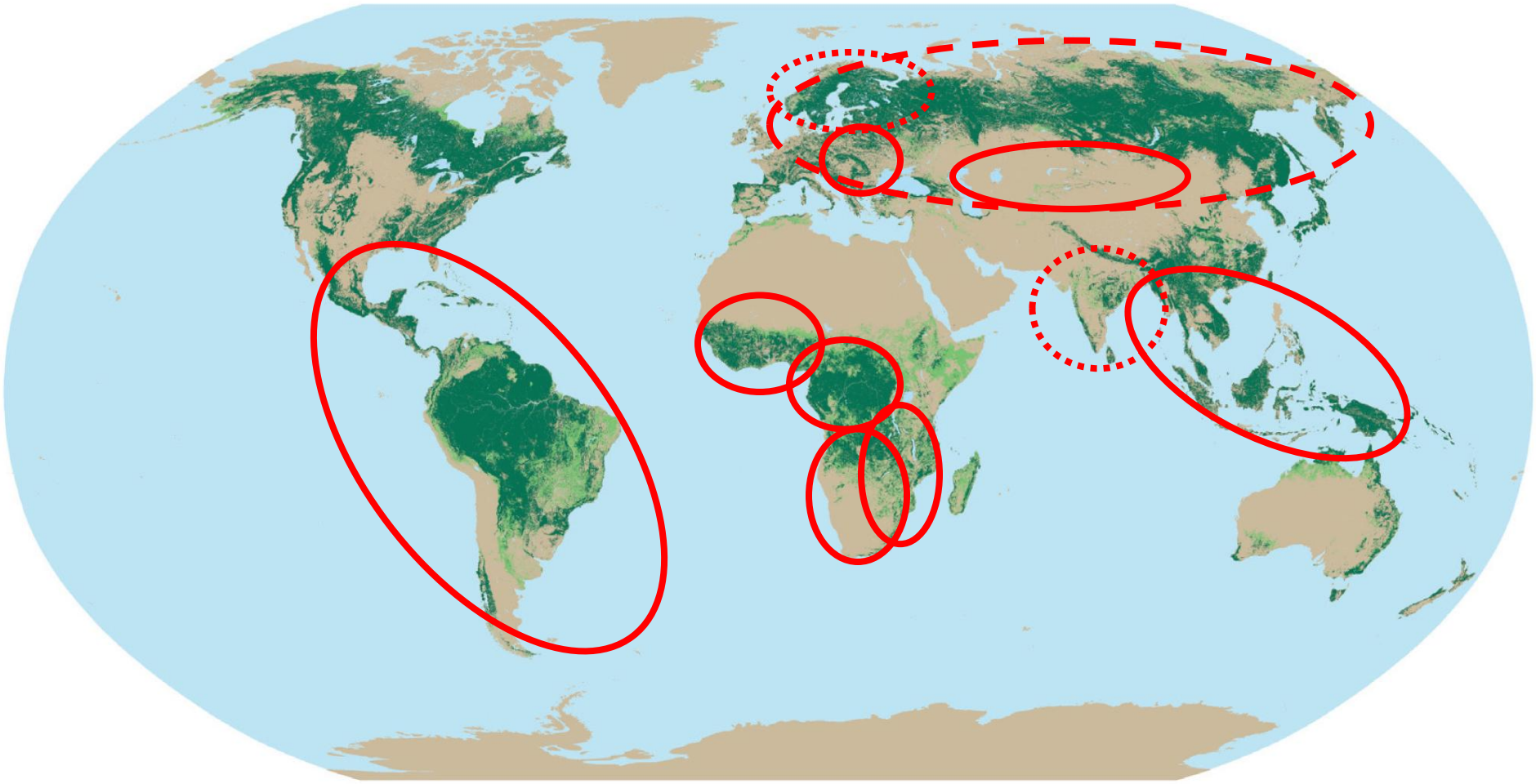
The world's forests



RedLatif MEETING
October 29th and 30th, 2012

Isabel Cruz (Mexico)

Eva Majias (Cuba)

Lilia Manzo (Mexico)

Paula Blanco (Argentina)

Fabiano Morelli (Brazil)

Isabel Manta (Peru)

Eliana Henriquez (Chile)

Carolina Tapia (Ecuador)

Northern Eurasia Regional Information Network

NERIN Workshops

- Boreal Forest Workshop -Novosibirsk, Russia, August 2000
- Regional workshop for Western Russia-Fennoscandia -- St. Petersburg, Russia, June 2001
- Northern Eurasia Earth Science Partnership Initiative (NEESPI) workshops --

Eurasia", September 15-21, 2009, Almaty, Kazakhstan

  - **CARIN – Central Asia Regional Information Network**
- **Formulation Workshop - April 17, 2012, Sofia, Bulgaria**
- **Volga Workshop, June 17 – 22, 2012, Yoshkar-Ola**

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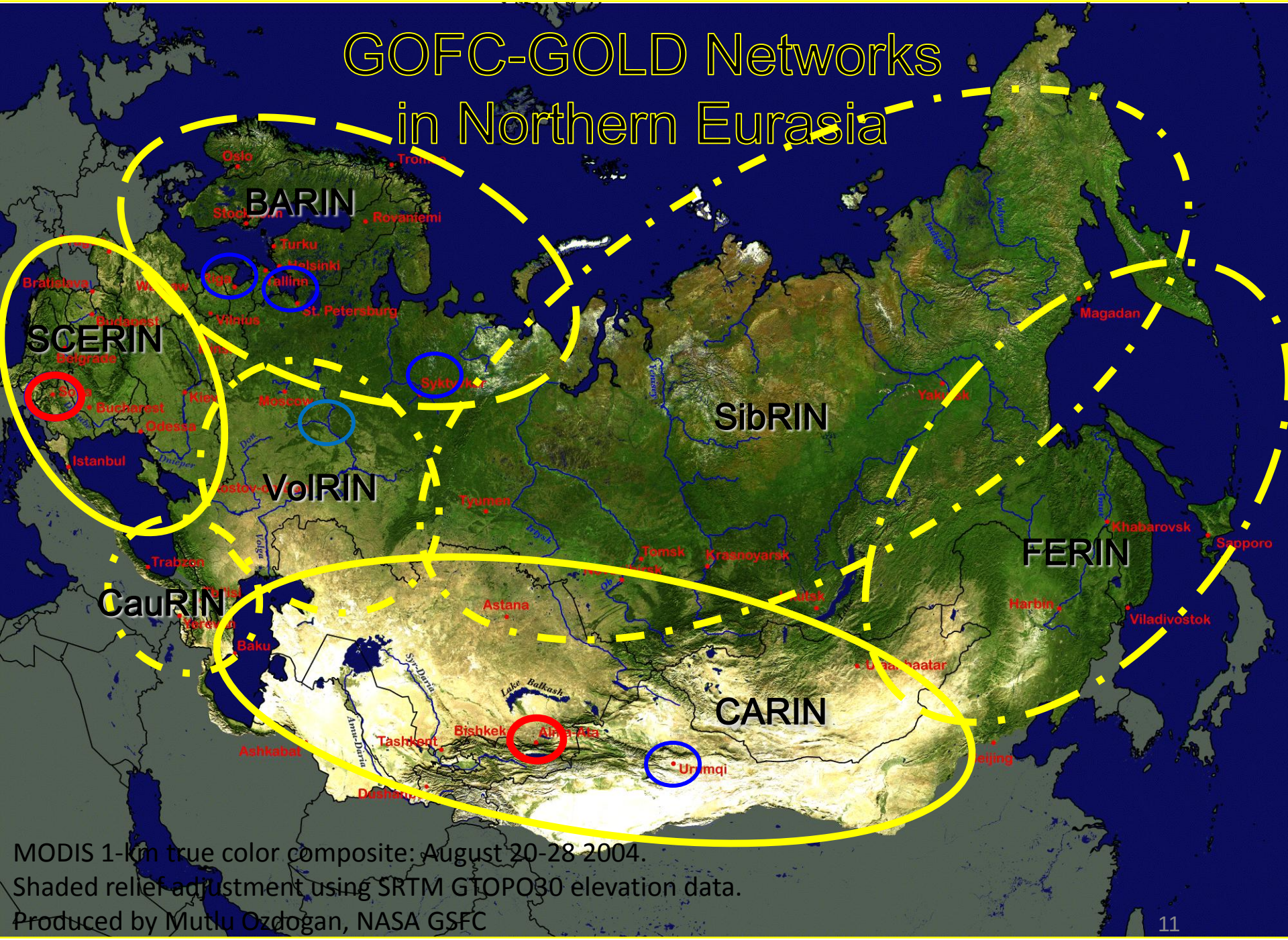


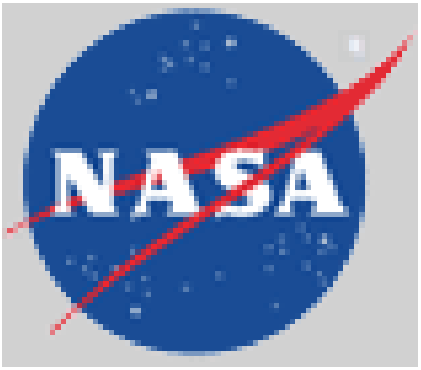
MODIS 1-km true color composite: August 20-28 2004.
Shaded relief adjustment using SRTM GTOPO30 elevation data.
Produced by Mutlu Ozdogan, NASA GSFC

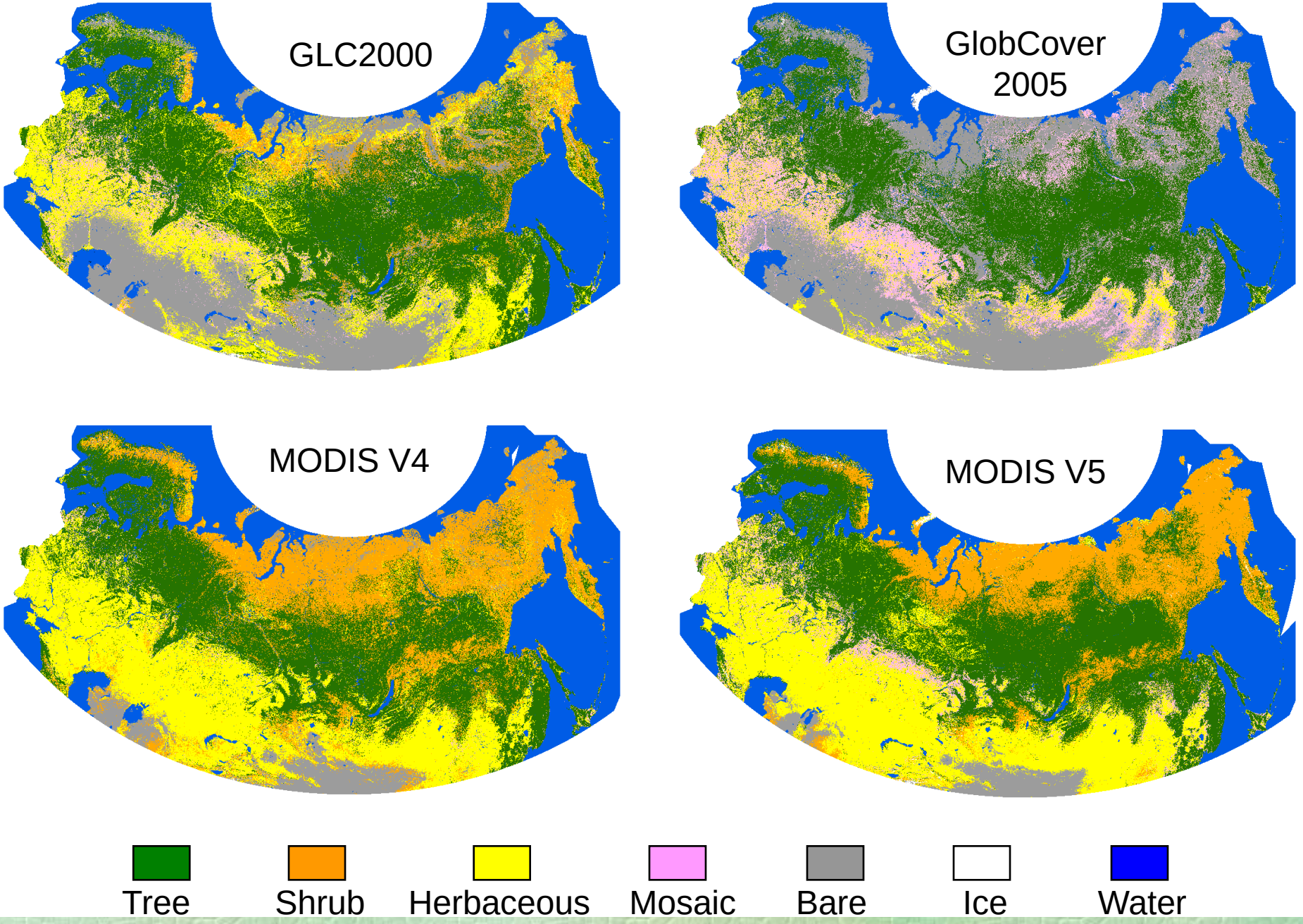
Network Activities

- Regional Workshops are the main activity
- GOFC-GOLD Regional Network Data Initiative
  - Landsat Data Archive at USGS is free!
  - Access is difficult in regions with inadequate internet
  - Disseminate Landsat data
  - Provide training in use of remotely sensed data
  - 3 Data Initiative workshops in USA (19 trainees total)
    - Data Initiative #4 – planned for 2014
- Network Projects

NELDA

(Northern Eurasia Landcover Dynamics Analysis)




GLC2000
GlobCover 2005
MODIS V4
MODIS V5
Tree
Shrub
Herbaceous
Mosaic
Bare
Ice
Water

NELDA

Northern Eurasia Land Dynamics Analysis

Project | Sites | Global Map Analysis | New Continental Map

- Overview
- St. Petersburg
- Carpathians
- Komi
- Chita
- Priangare
- Kazakhstan
- Amur
- Vasyugan
- Sikhote-Alin
- Mongolia
- Yoshkar Ola

Global Land Cover

To identify specific needs and possibilities for improved mapping of land cover across boreal and temperate Northern Eurasia, we compared the performance of recent land-cover products derived from different sensors: MODIS (MODIS IGBP Land Cover Collection 4 and 5), SPOT VEGETATION (GLC-2000) and MERIS (GLOBCOVER).

What are the differences and similarities between global datasets?

We examined the level of agreement among these data sets across the entire region. On a qualitative level, the assessment of general patterns indicates the highest degree of disagreement in transitional zones at the northern and southern fringes of boreal forest, in mountainous regions, and in areas of extensive wetlands, agricultural development, and urban land use. The quantitative analysis measured the level of disagreement between land-cover classes aggregated according to dominant life form type of vegetation (trees, shrubs, herbaceous, bare land, and permanent snow/ice).

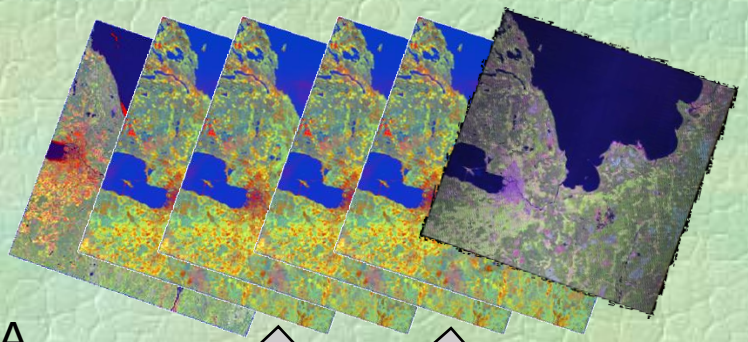
What is the accuracy of global maps at NELDA test sites?

Validation of global datasets was performed with higher resolution, Landsat-based land cover maps from NELDA test sites. Fractional land cover was calculated for coarse resolution pixel and used to construct fractional error matrices. Most errors were associated with "mixed" coarse-resolution pixels (i.e. those having nearly equal percentage of multiple class types), while errors in "pure" (single class) pixels were low. In addition to actual differences in land-cover classifications, other sources of discrepancy among these land cover products include class definitions, map projections, and spatial resolution.

Dominant Live Form Types

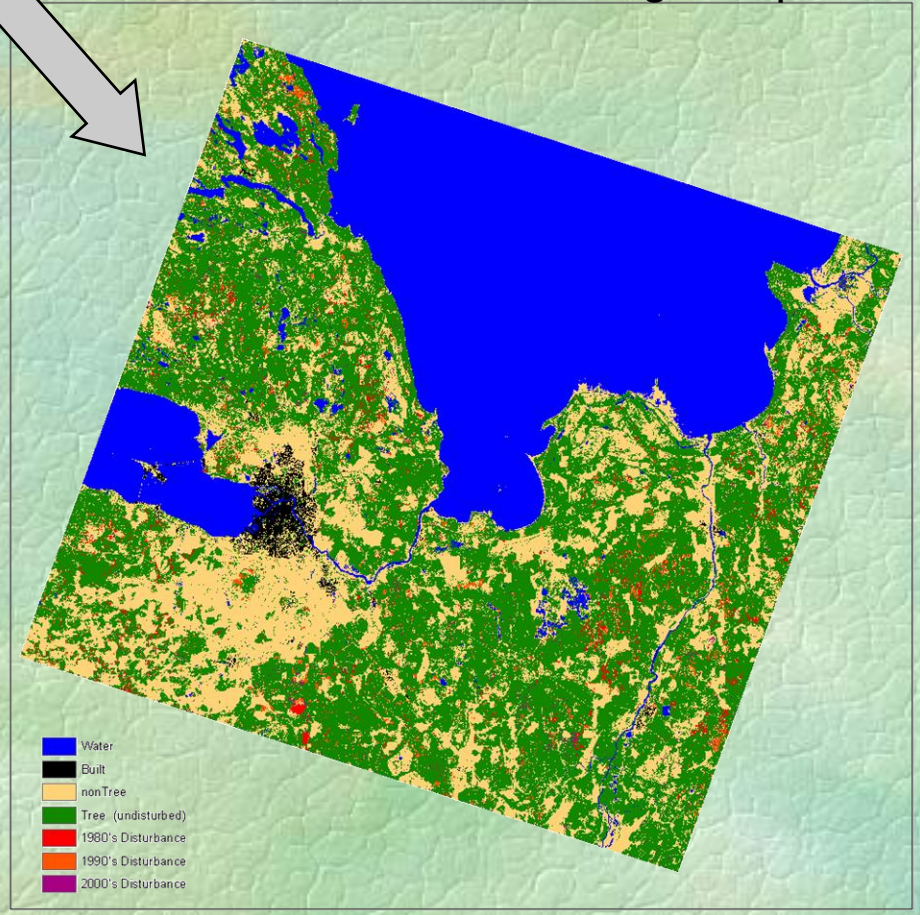
Differences in class definitions and legends between maps are a major difficulty for comparing global land

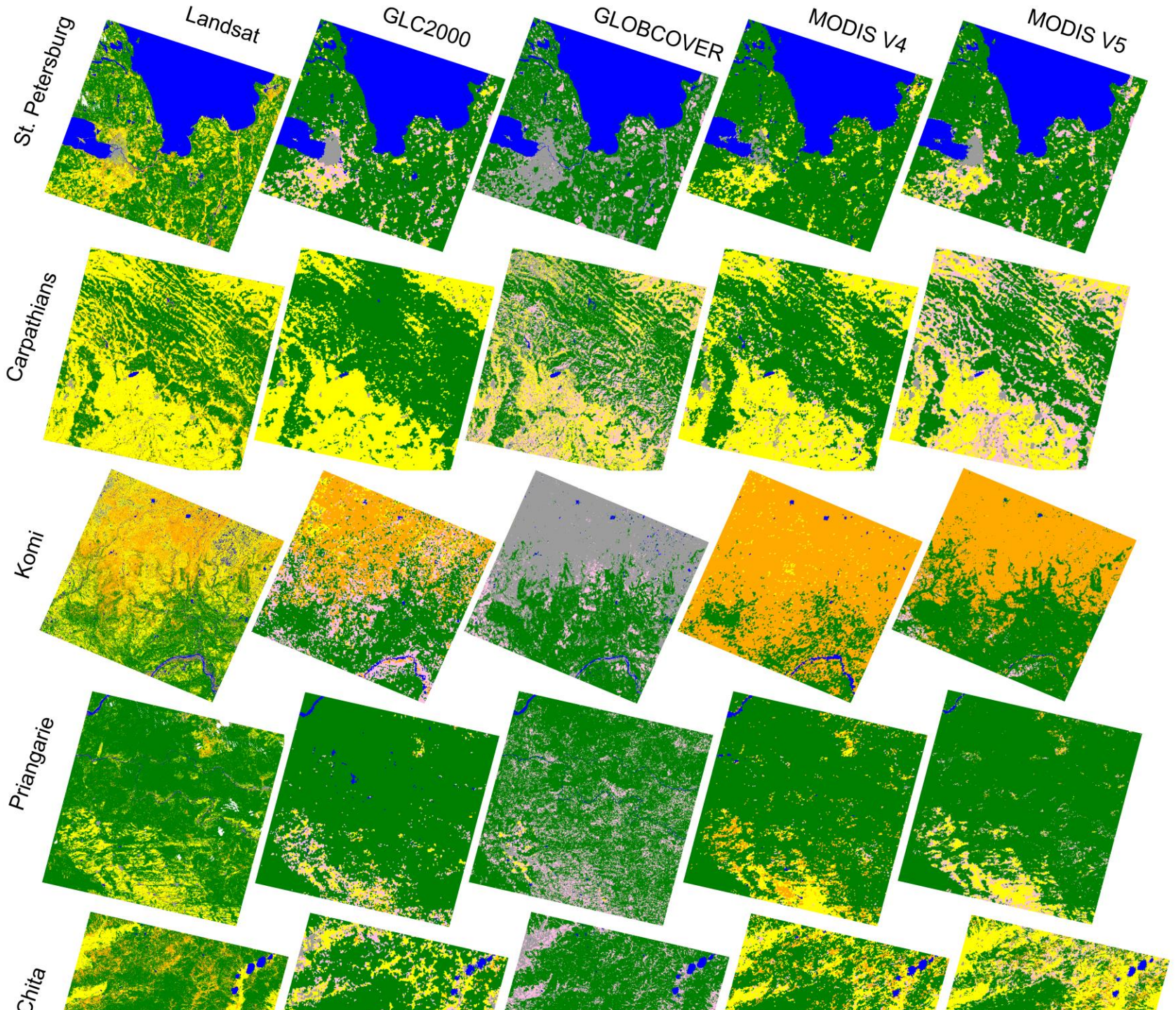
http://www.fsl.orst.edu/nelda/index.html

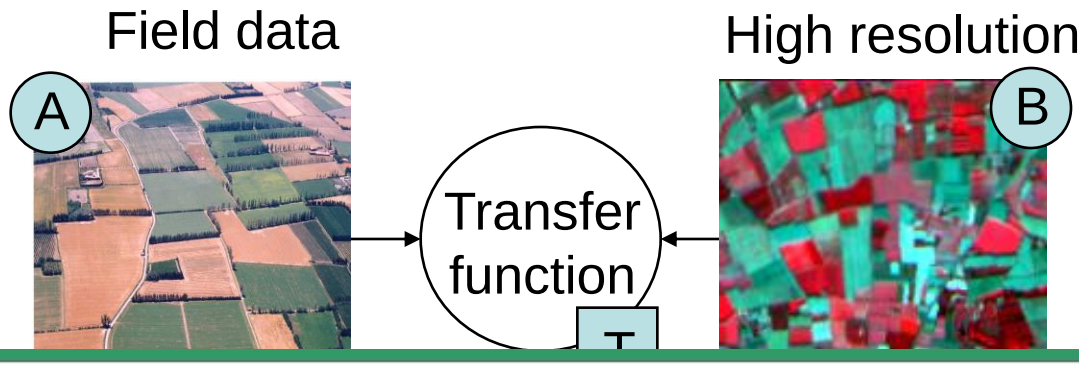


NELDA
Land Cover

Change Map




Landsat
GLC2000
GLOBCOVER
MODIS V4
MODIS V5
St. Petersburg
Carpathians
Komi
Priangarie
Chita



Contents lists available at SciVerse ScienceDirect

Remote Sensing of Environment

journal homepage: www.elsevier.com/locate/rse

Comparison and assessment of coarse resolution land cover maps for Northern Eurasia

Dirk Pflugmacher [a,*], Olga N. Krankina [a], Warren B. Cohen [b], Mark A. Friedl [c], Damien Sulla-Menashe [c], Robert E. Kennedy [a], Peder Nelson [a], Tatiana V. Loboda [d], Tobias Kuemmerle [e], Egor Dyukarev [f], Vladimir Elsakov [g], Viacheslav I. Kharuk [h]

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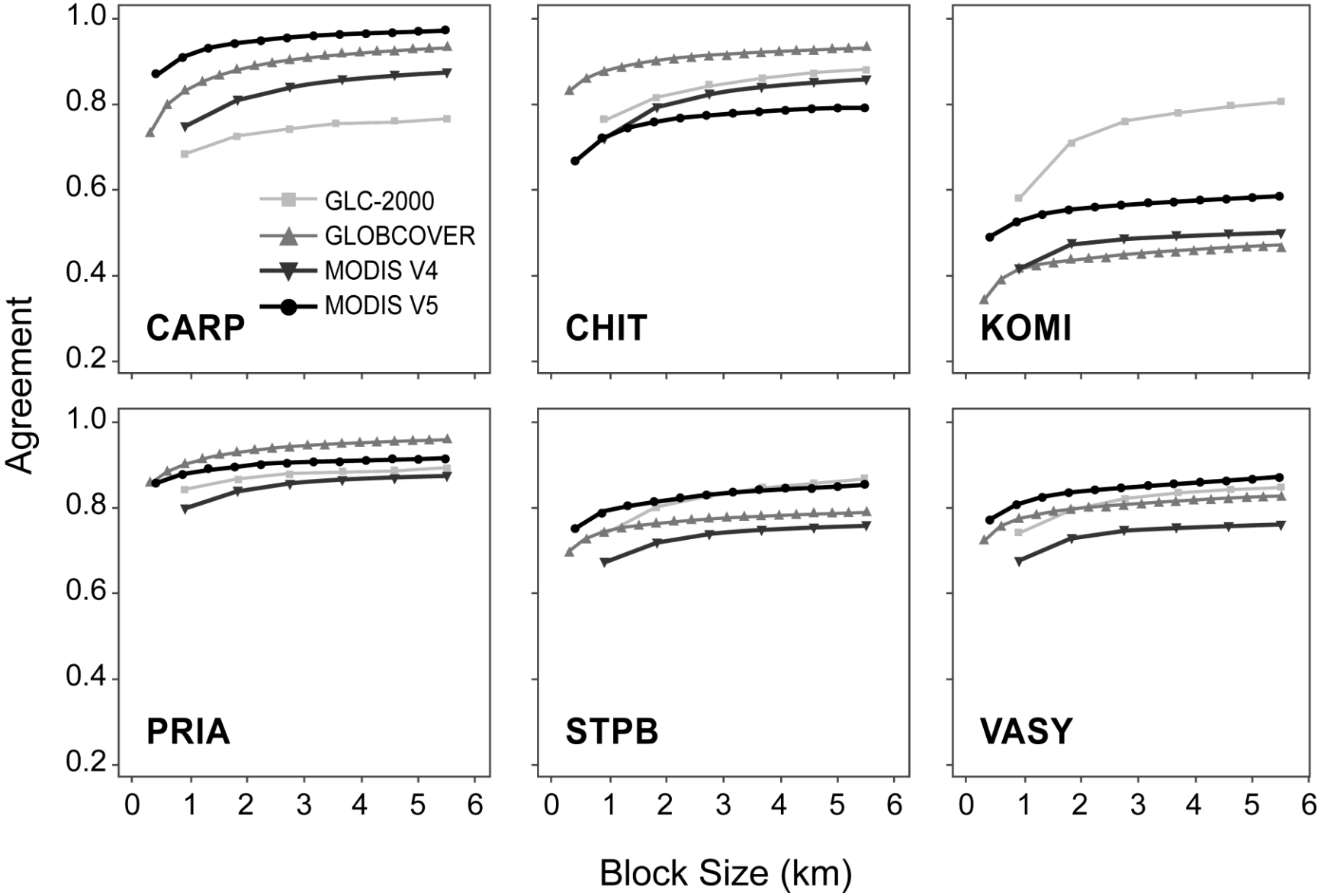
[f] Institute of Monitoring of Climatic and Ecological Systems, Tomsk 634021, Russia
[g] Institute of Biology, Komi Science Center, Russian Academy of Sciences, Kommunisticheskaja st., 28, 167610 Syktyvkar, Russia
[h] V.N. Sukachev Institute of Forest, Krasnoyarsk, Russia


Agreement
1.0
0.8
0.6
0.4
0.2
GLC-2000
GLOBCOVER
MODIS V4
MODIS V5
CARP
CHIT
KOMI
PRIA
STPB
VASY
0
1
2
3
4
5
6
Block Size (km)

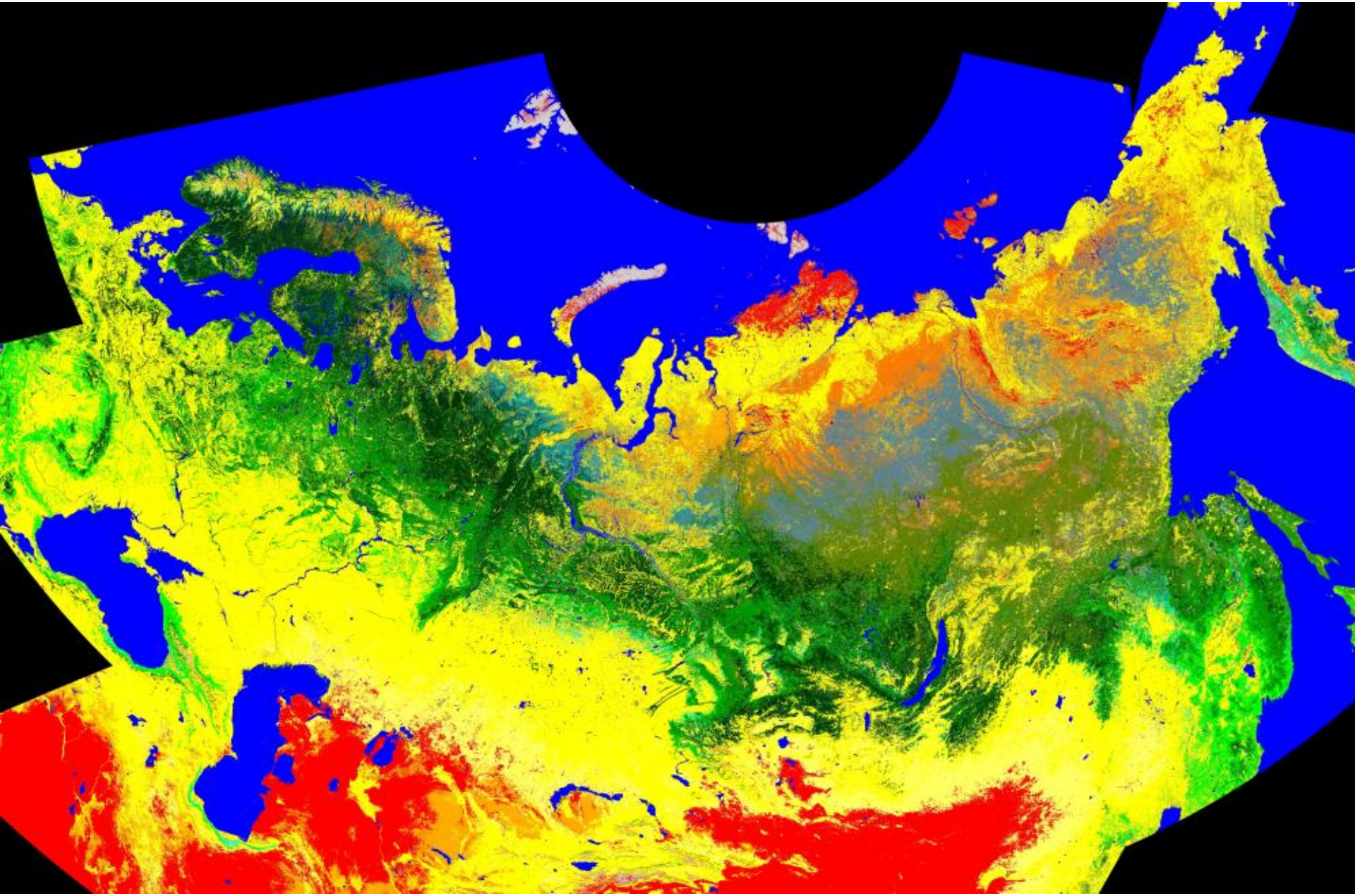
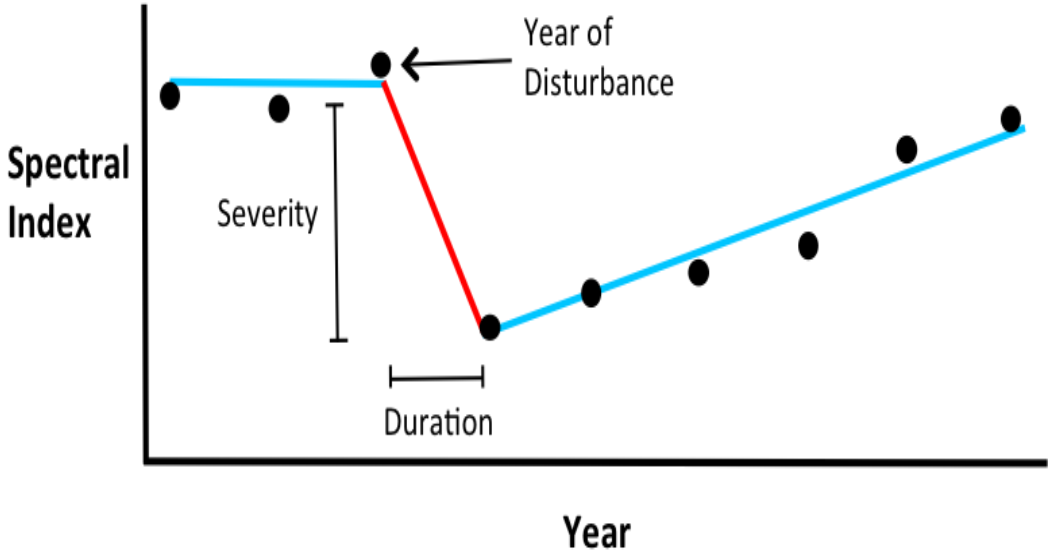
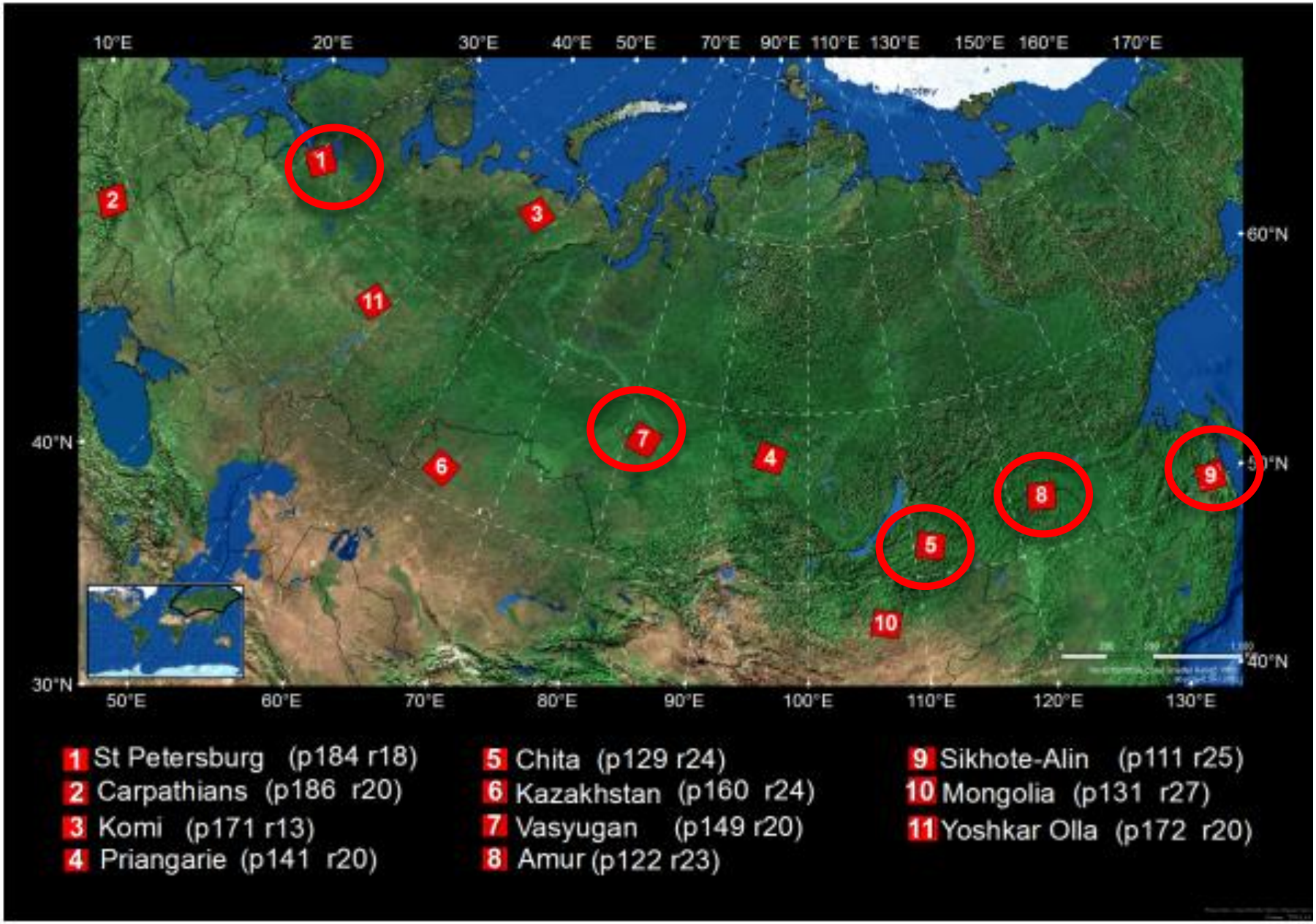


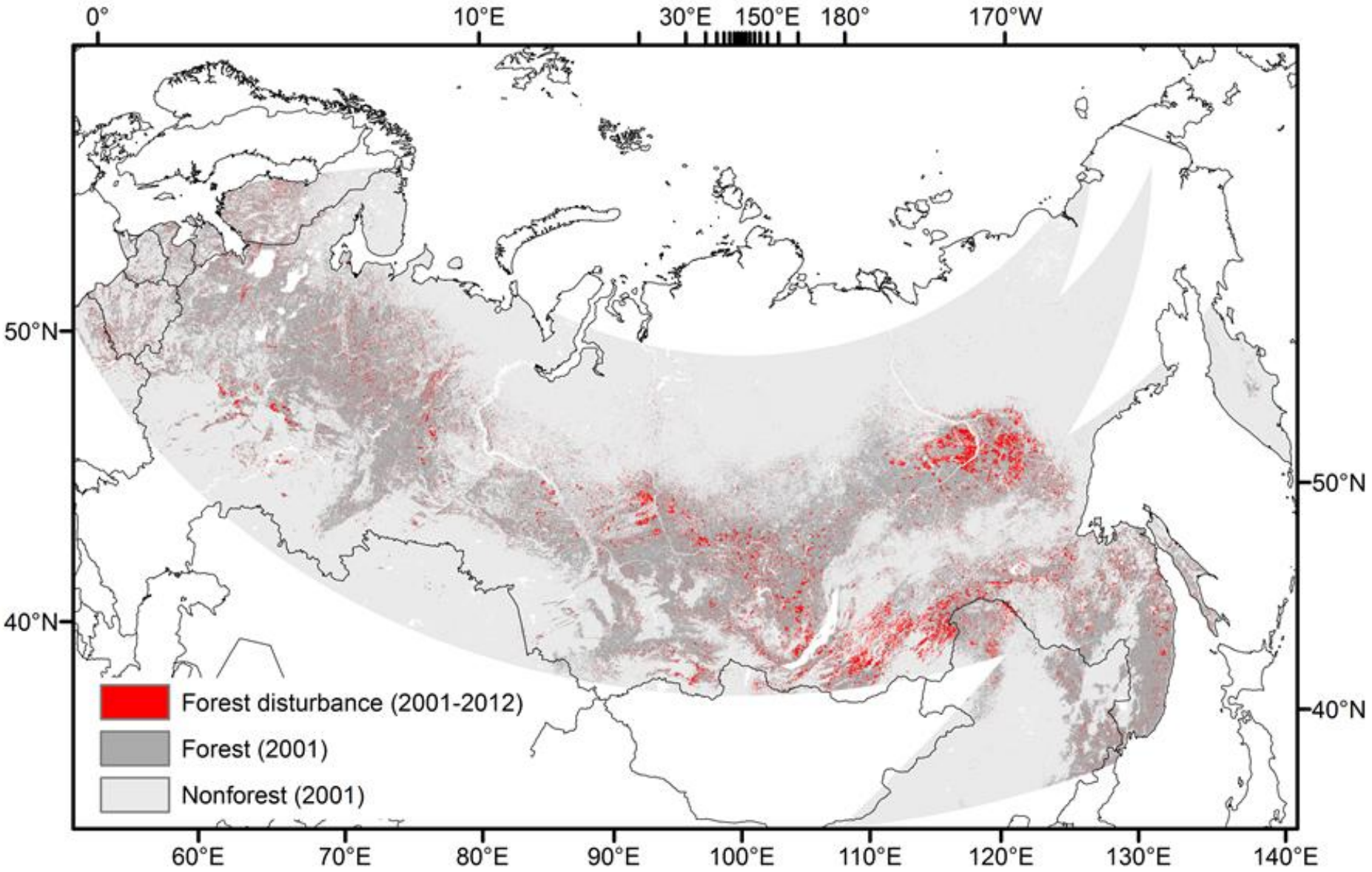
Figure 1. Example of segmentation results from LandTrendr. In a sequence of some spectral index for a single Landsat pixel through time, a disturbance segment (highlighted in red) can be summarized by its timing, severity, and duration.



Sulla-Menashe, D., Kennedy, R.E., Yang, Z., Braaten, J., Krankina, O.N., & Friedl, M.A. 2014. Detecting forest disturbance in the Pacific Northwest from MODIS time series using temporal segmentation. Remote Sensing of Environment (in press). Available online 7 November 2013, ISSN 0034-4257, http://dx.doi.org/10.1016/j.rse.2013.07.042



D. Pflugmacher, D. Sulla-Menashe, O. Krankina. "ASSESSMENT OF THE MODTRENDR ALGORITHM FOR MAPPING FOREST DISTURBANCES IN NORTHERN EURASIA" NELDA-II REPORT (UNPUBLISHED)



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Planning the future of networks

- All-Networks meeting (April 18, 2013)
  - Future network activities and support
  - Improving quality and effectiveness of training
  - Coordination with ITs and working groups
- New GOFC-GOLD proposal to NASA
  - To be prepared by START by fall of 2014
- Regional Network Projects
  - Science, applications, training, etc.
- Regional networks need committed individuals and institutions who can lead activities of a network

GOFC-GOLD

Global Observation of Forest and Land Cover Dynamics

http://www.fao.org/gtos/gofc-gold/index.html

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